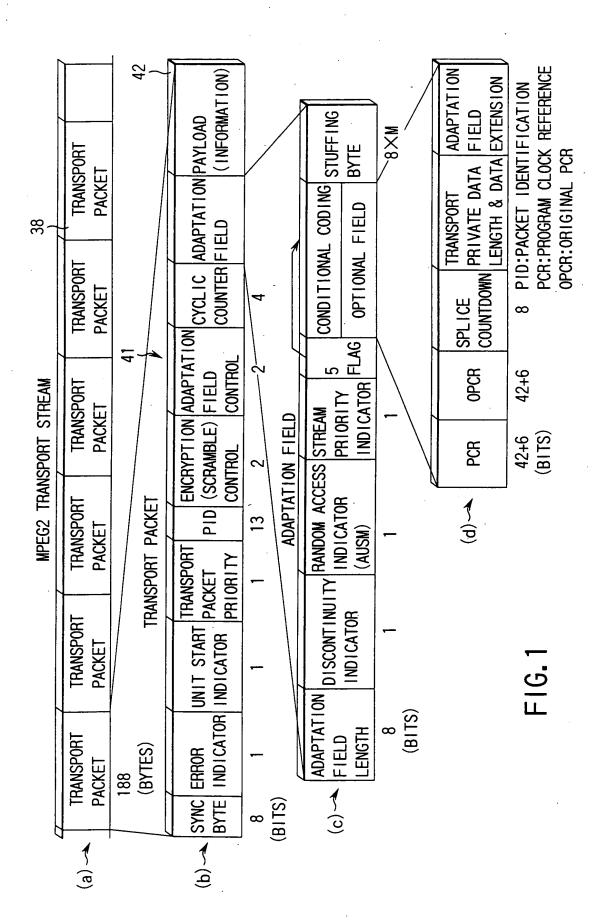
OBLON, SPIVAK, ET AL DOCKET #:204591US-2S DIV INV: HIDEO ANDO ET AL SHEET 1_ OF_30_



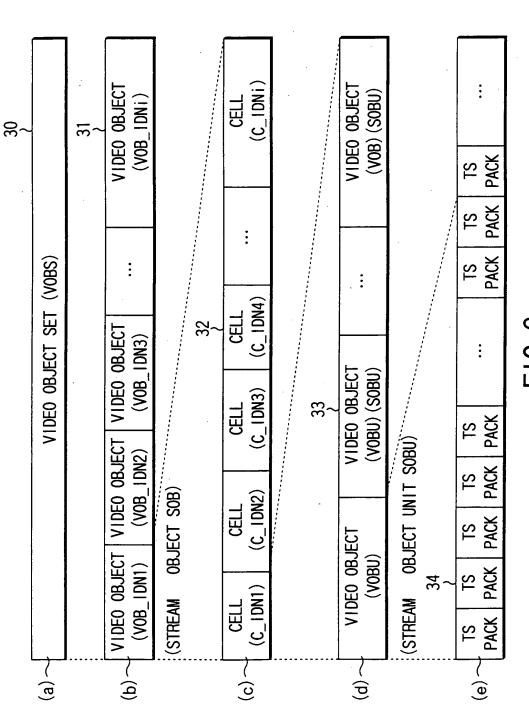
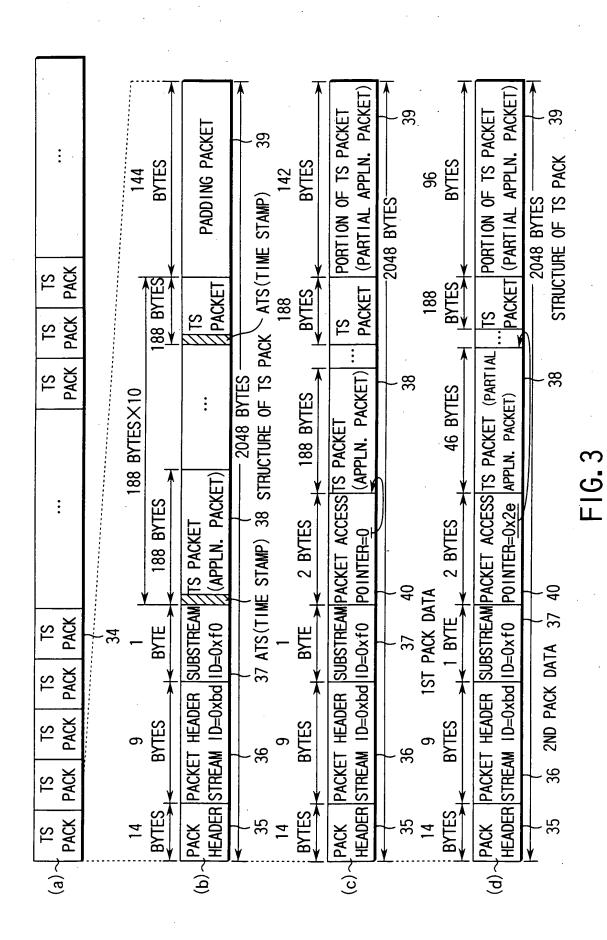
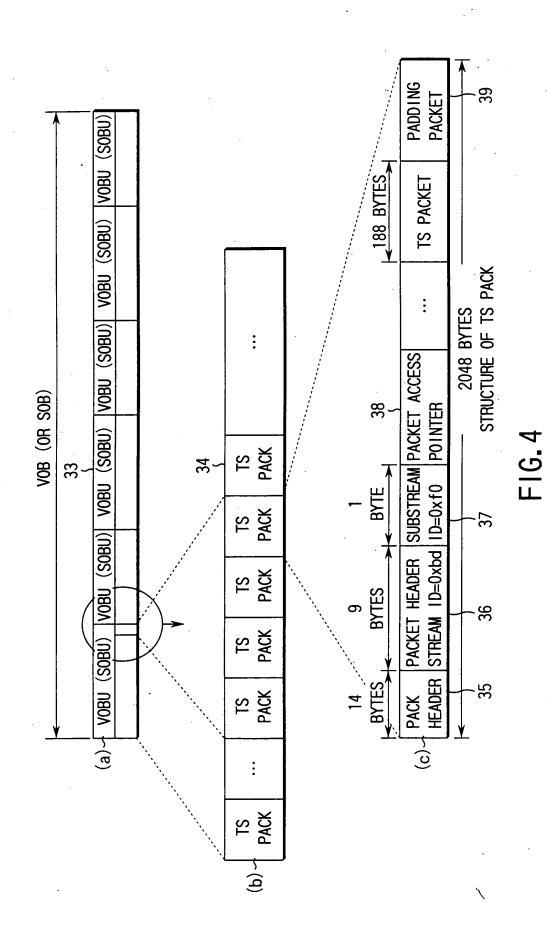


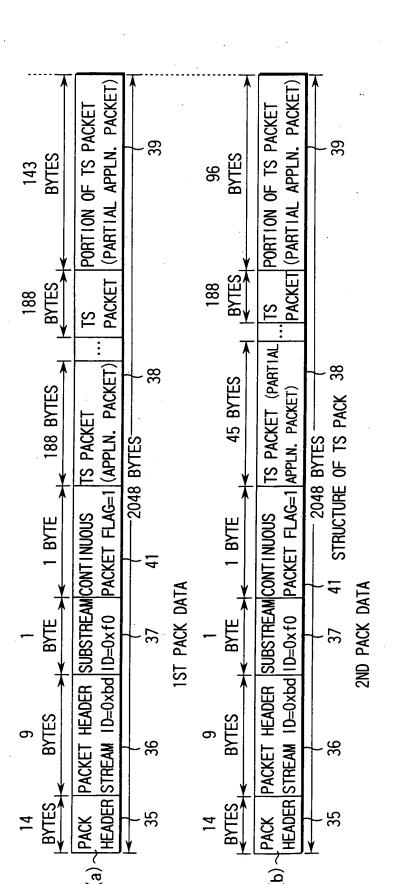
FIG. 2

OBLON, SPIVAK, ET AL DOCKET #:204591US-2S DIV INV: HIDEO ANDO ET AL SHEET 3_OF_30_





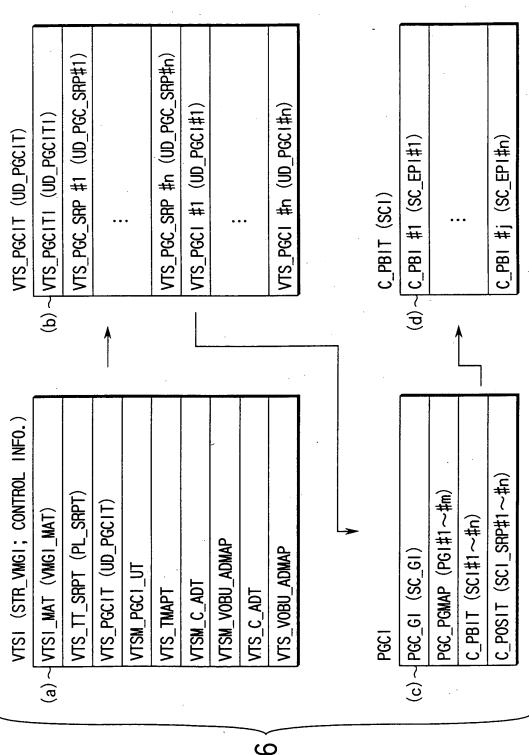




IF CONTINUOUS PACKET FLAG=1, TS PACKET EXTENDS ACROSS NEXT PACK (FROM 39 OF (a) TO 38 OF (b))

FIG. 5

OBLON, SPIVAK, ET AL DOCKET #:204591US-2S DIV INV: HIDEO ANDO ET AL SHEET <u>6</u> OF <u>30</u>



-16.

OBLON, SPIVAK, ET AL DOCKET #:204591US-2S DIV INV: HIDEO ANDO ET AL SHEET 7_ OF_30_



PGC GI (SC GI)

1b···SUPPORTED PCR SUPPORT FLAG

SCD SUPPORT FLAG

REFERENCE SCD=SPLICE COUNTDOWN

Ob···NOT SUPPORTED, 1b···SUPPORTED

Ob···NOT SUPPORTED, 1b···SUPPORTED

PCR=PRESENTATION CLOCK

| | PGC_G1 (3C_G1) | |
|-----|------------------|--|
| | | CONTENTS |
| (a) | PGC_CNT | NUMBER OF PROGRAMS, NUMBER OF CELLS |
| 1 | PGC_TRS_TM | RECORDING TIME PER PGC |
| A | SUPPORT INFO | SUPPORT INFORMATION (DETAILS ARE LISTED BELOW) |
| | PGC_PGMAP_SA | START ADDRESS OF PROGRAM MAP |
| | C_PBIT_SA | START ADDRESS OF C_PBIT |
| | C_POSIT_SA | START ADDRESS OF C_POSIT |
| | | ERASE INHIBITION FLAG |
| | (C_TY1 & TE) | 0: FREE, 1: SAVE PERMANENTLY |
| | SC_EPI_Ns | NUMBER OF ENTRY POINT INFORMATION |
| | SOB_N | STREAM OBJECT NUMBER |
| | SC_S_APAT | STREAM CELL START APAT |
| | SC_E_APAT | STREAM CELL END APAT |
| | if (TE=='10b') { | |
| | ERA_S_APAT | ERASE START APAT |
| | ERA_E_APAT | ERASE END APAT |
| | L7 LC | h4 h2 h0 h1 h0 |

| | D/ D5 | D4 | D3 | DZ | ום | <u> </u> |
|---|----------------|---------|---------|---------|------------|----------|
| 1 | IDENTIFICATION | SCD | PCR | PAT, | UNIT START | DANIDON |
| | DATA | SUFFUNI | SUPPURI | SUPPORT | SUPPORT | SUPPORT |

RANDOM ACCESS STB IDENTIFICATION CODE INDICATOR SUPPORT FLAG 001:STB OF BS DIGITAL BROADCAST Ob...NOT SUPPORTED. 010:Ver2 STB 0F DirecTV 16···SUPPORTED 011:Ver1 STB OF SKY PERFECT TV UNIT START INDICATOR C TY1...'010b' SHALL BE DESCRIBED FOR ALL STREAM CELLS
TE···'00b':THIS CELL IS IN THE SUPPORT FLAG Ob ... NOT SUPPORTED. "NORMAL" STATE
'01b':THIS CELL IS IN "TEMPORARILY
ERASED" STATE; AND THIS CELL STARTS 1b····SUPPORTED PAT, PMT SUPPORT FLAG Ob···NOT SUPPORTED,

ERASED" STATE; AND THIS CELL STARTS
AFTER THE FIRST APPLICATION PACKET
OF A SOBU AND ENDS BEFORE THE LAST
APPLICATION PACKET OF THE SAME SOBU

'10b':THIS CELL IS IN "TEMPORARILY ERASED" STATE: AND THIS CELL CONTAINS AT LEAST ONE SOBU BORDER (FIRST OR LAST APPLICATION PACKET OF A SOBU). ERA_S_APAT AND ERA E_APAT EXIT FOR THIS CELL

OBLON, SPIVAK, ET AL DOCKET #:204591US-2S DIV INV: HIDEO ANDO ET AL SHEET 8_ OF_30_



F16.8

| | | | | | | | | T | Γ- | | | 8 |
|--------------------|-----------------------------|--|-----------------------|------------------------------------|----------------------------------|--------------------------------|----------------------|---|---|---|---|---------------------|
| NUMBER OF BYTES | | | | | | | | | | | | $30+(n-1) \times 8$ |
| CONTENTS | CELL TYPE 02: STREAMER CELL | STC VALUE OR PCR UPON RECORDING HEAD OF CELL OF INTEREST | START ADDRESS OF CELL | START ADDRESS OF LAST VOBU OF CELL | END ADDRESS OF LAST VOBU OF CELL | TS PACKET LENGTH: NORMAL: 0xbc | NUMBER OF 1-PICTURES | REFPIC_SA_#1 (AUSM) START ADDRESS OF I-PICTURE #1 | REFPIC_EA_#1 (AUEM) END ADDRESS OF I-PICTURE #1 | 23+(n-1) X8 REFPIC_SA_#n (AUSM) START ADDRESS OF I-PICTURE #n | 27+(n-1) X8 REFPIC_EA_#n (AUEM) END ADDRESS OF I-PICTURE #n | TOTAL |
| | C_CAT (C_TY) | C_ARLTM | C_FV0BU_SA | C_LV0BU_SA | C_LV0BU_EA | TS PACKET LENGTH | REFPIC_Ns (AU_Ns) | REFPIC_SA_#1 (AUSM) | REFPIC_EA_#1 (AUEM) | REFPIC_SA_#n (AUSM) | REFPIC_EA_#n (AUEM) | |
| RBP | 0 TO 0 | 1 TO 4 | 5 TO 8 | 9 T0 12 | 13 TO 16 | 17 TO 18 | 19 TO 22 | 23 TO 26 | 27 TO 30 | 23+(n-1) X8 | 27+(n-1)×8 | |

REFPIC_Ns: NUMBER OF 1-PICTURES ("O" IF NO RANDOM ACCESS INDICATOR IS AVAILABLE) REFPIC_SA#n: ADDRESS OF TS PACK INCLUDING FIRST TS PACKET OF I-PICTURE #n

AD

(TS PACK WITH ACTIVE RANDOM ACCESS INDICATOR)

REFPIC_EA#n: ADDRESS OF TS PACK INCLUDING LAST TS PACKET OF I-PICTURE #n (TS PACK WITH ACTIVE UNIT START INDICATOR)

("0" IF NO UNIT START INDICATOR IS AVAILABLE)

dige special content of the first content of the formal special specia

C_PBI (SCI)

the special part that the series of the seri

the fixed earth refers that from



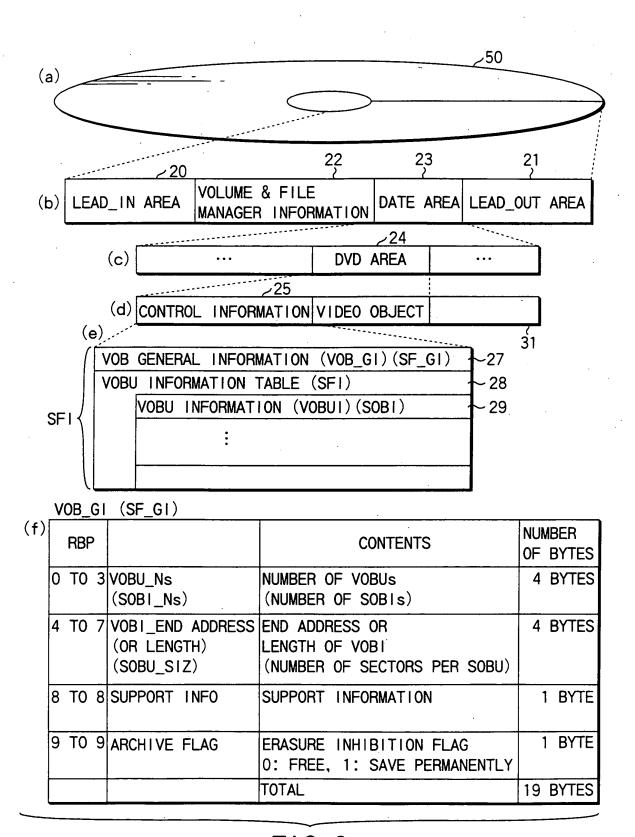


FIG.9

ON, SPIVAK, ET AL

| 4 | |
|---|--|
| | |

 $25+(n-1)\times 8$

REFPIC_NS: NUMBER OF 1-PICTURES ("O" IF NO RANDOM ACCESS INDICATOR IS AVAILABLE)

REFPIC_SA#n: ADDRESS OF TS PACK INCLUDING FIRST TS PACKET OF I-PICTURE #n

(TS PACK WITH ACTIVE RANDOM ACCESS INDICATOR)

REFPIC EA#n:

¶ M

STC VALUE OR PCR UPON RECORDING HEAD OF VOBU OF INTEREST CONTENTS TS PACKET LENGTH: NORMAL: 0xbc 16+(n-1) X8|REFPIC_SA_#n (AUSM)|START ADDRESS OF 1-PICTURE #n END ADDRESS OR LENGTH OF VOBU # 20+(n-1) X8|REFPIC_EA_#n (AUEM)|END ADDRESS OF 1-PICTURE #n REFPIC SA #1 (AUSM) START ADDRESS OF 1-PICTURE REFPIC_EA_#1 (AUEM) END ADDRESS OF I-PICTURE #1 START ADDRESS OF VOBU NUMBER OF I-PICTURES **TOTAL** VOBU START ADDRESS REFPIC_NS (AU_NS) **VOBU END ADDRESS** TS PACKET LENGTH (OR LENGTH) VOBU RECTM TO 25 2 TO 13 21 4 TO 17 器 8 T0 11 4 T0 7 18 TO

22

ADDRESS OF TS PACK INCLUDING LAST TS PACKET OF I-PICTURE #n (TS PACK WITH ACTIVE UNIT START INDICATOR) ("O" IF NO UNIT START INDICATOR IS AVAILABLE)

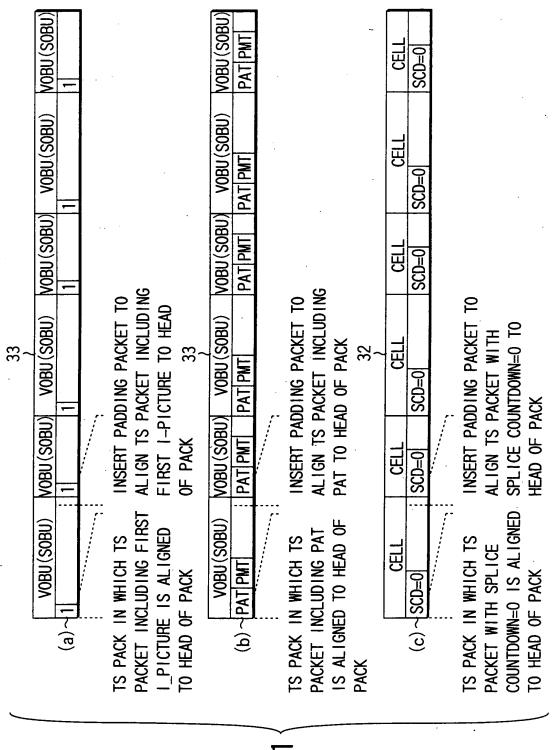
double ... 28 from the from the first that the The first three with the three three

VOBUI (SOBI)

0 70

OF BYTES NUMBER

OBLON, SPIVAK, ET AL DOCKET #:204591US-2S DIV INV: HIDEO ANDO ET AL SHEET 11 OF 30



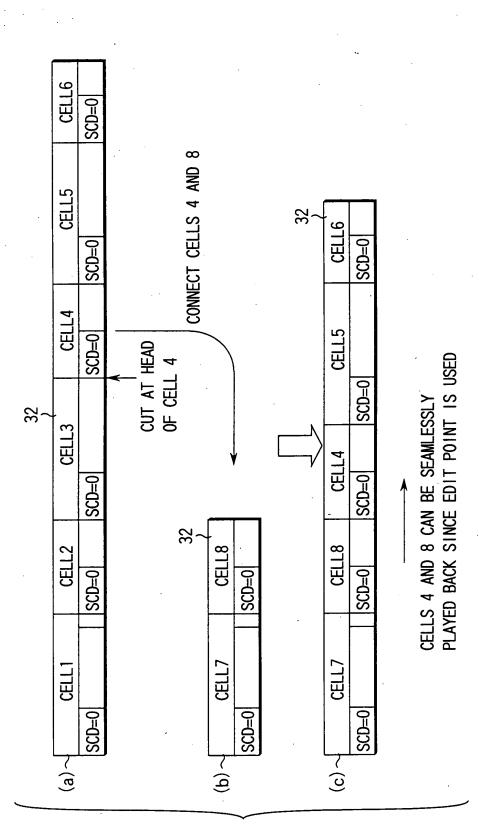
F16.1

OBLON, SPIVAK, ET AL DOCKET #:204591US-2S DIV INV: HIDEO ANDO ET AL SHEET 12_OF_30_



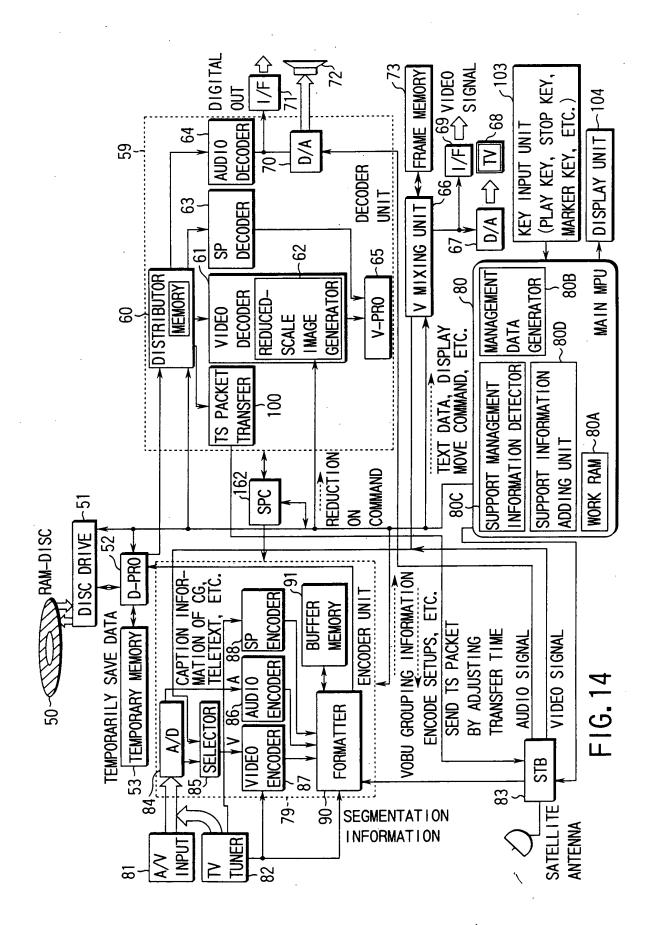
PAT PMT PAT PMT PAT PMT පි <u>B</u> GELL P60 PG ELI ELI PAT PMT PAT PMT PAT PMT PAT PMT PAT PMT PAT PMT CELL **P**60 **B** ALIGN TS PACKET INCLUDING ALIGN TS PACKET INCLUDING ALIGN TS PACKET INCLUDING INSERT PADDING PACKET TO INSERT PADDING PACKET TO INSERT PADDING PACKET TO සි <u>ක</u> PAT TO HEAD OF PACK PAT TO HEAD OF PACK PAT TO HEAD OF PACK ည 32 PAT PMT PAT PMT PAT PMT PAT PMT PAT PMT PAT PMT පි <u>B</u> E E IS ALIGNED TO HEAD OF IS ALIGNED TO HEAD OF IS ALIGNED TO HEAD OF PACKET INCLUDING PAT PACKET INCLUDING PAT PACKET INCLUDING PAT TS PACK IN WHICH TS TS PACK IN WHICH TS TS PACK IN WHICH TS පි <u>P</u>G EII EII $(b) \sim |PAT|PMT|$ (a) ~PAT PMT (c) ~PAT PMT

FIG. 12

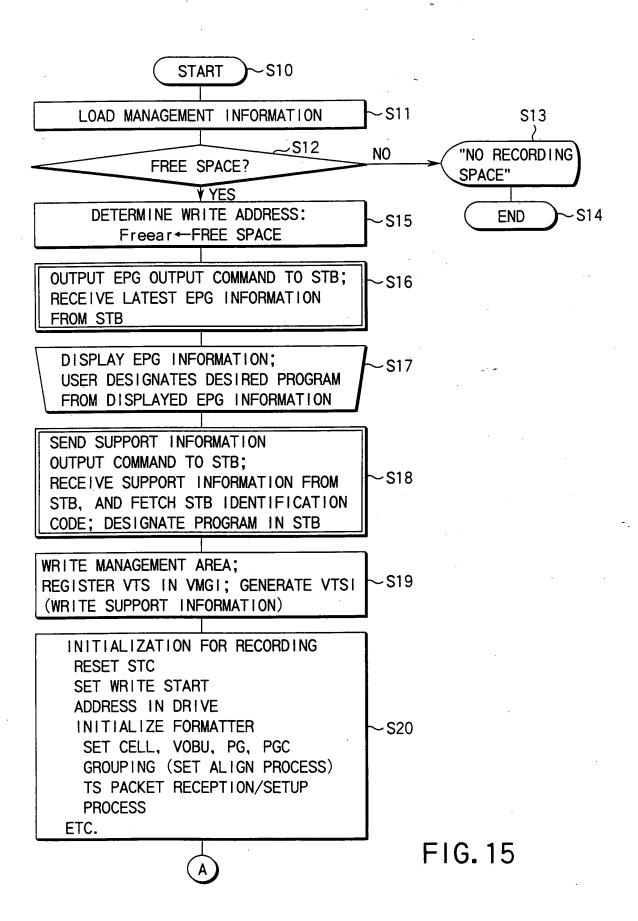


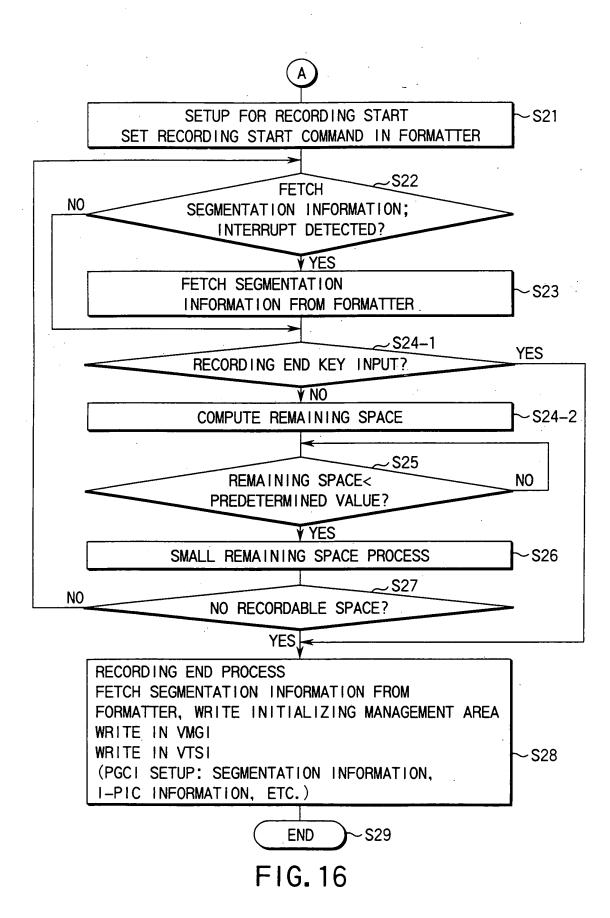
F16.13

OBLON, SPIVAK, ET AL
DOCKET #:204591US-2S DIV
INV: HIDEO ANDO ET AI
SHEET 14_OF_30_

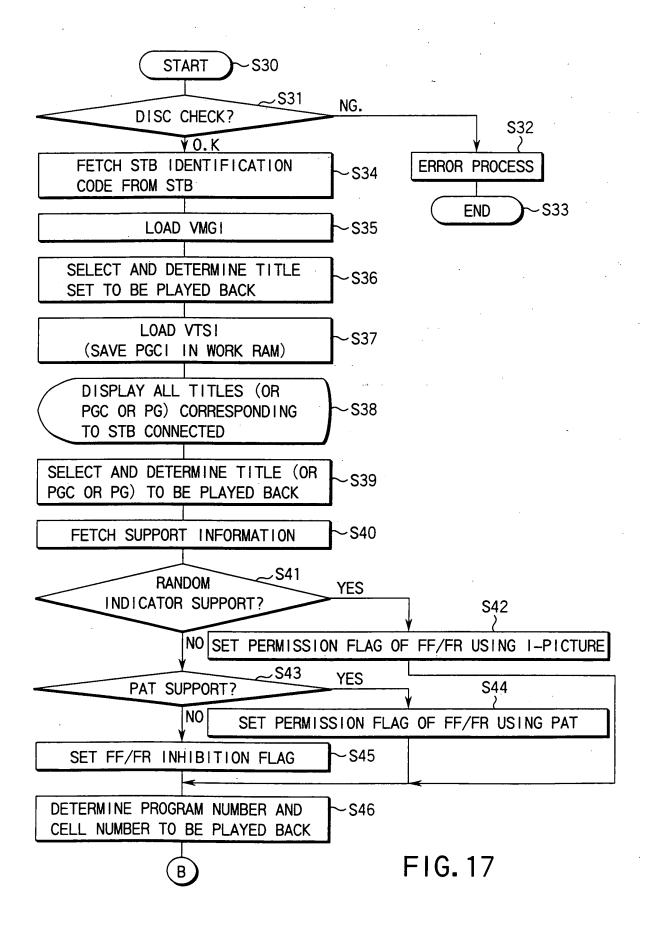


OBLON, SPIVAK, ET AL
DOCKET #:204591US-2S DIV
INV: HIDEO ANDO ET AL
SHEET 15_ OF_30_





OBLON, SPIVAK, ET AL DOCKET #:204591US-2S DIV IV: HIDEO ANDO ET AL SHEET <u>17</u> OF <u>30</u>



OBLON, SPIVAK, ET AL DOCKET #:204591US-2S DIV IV: HIDEO ANDO ET AL SHEET <u>18</u> OF <u>30</u>

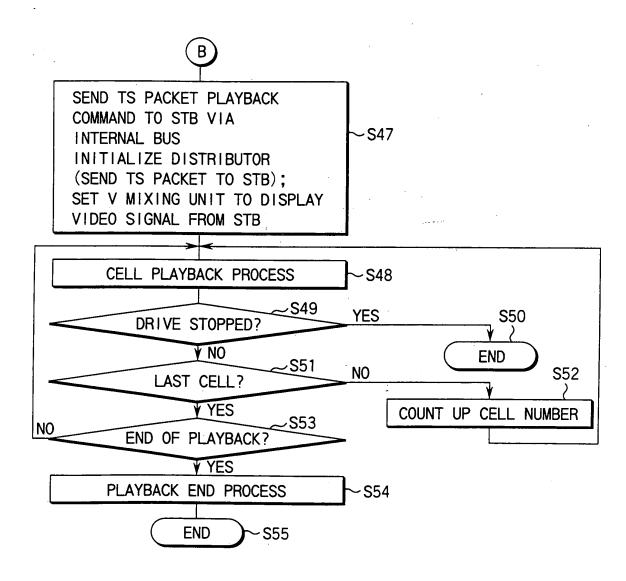
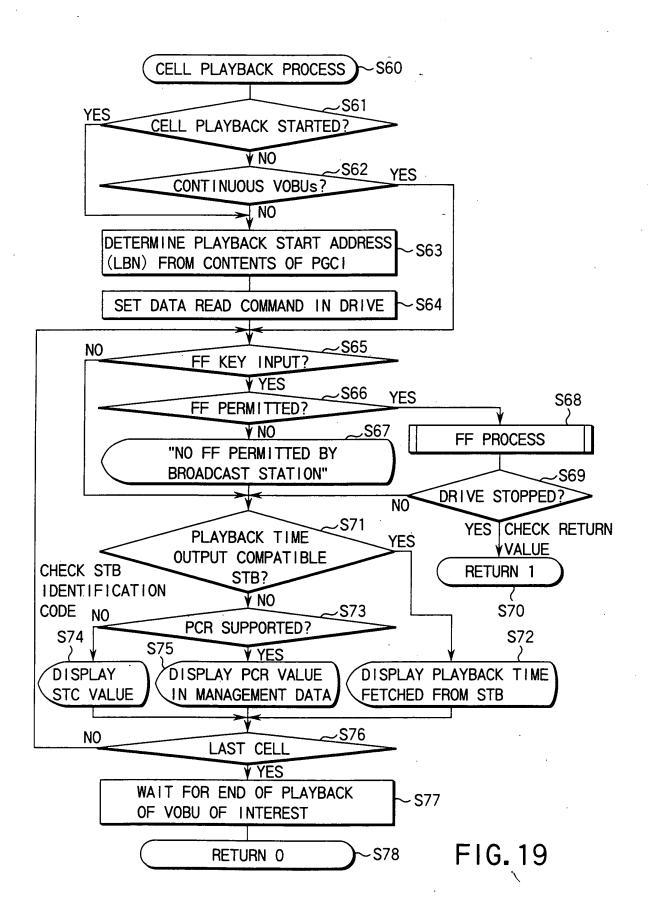
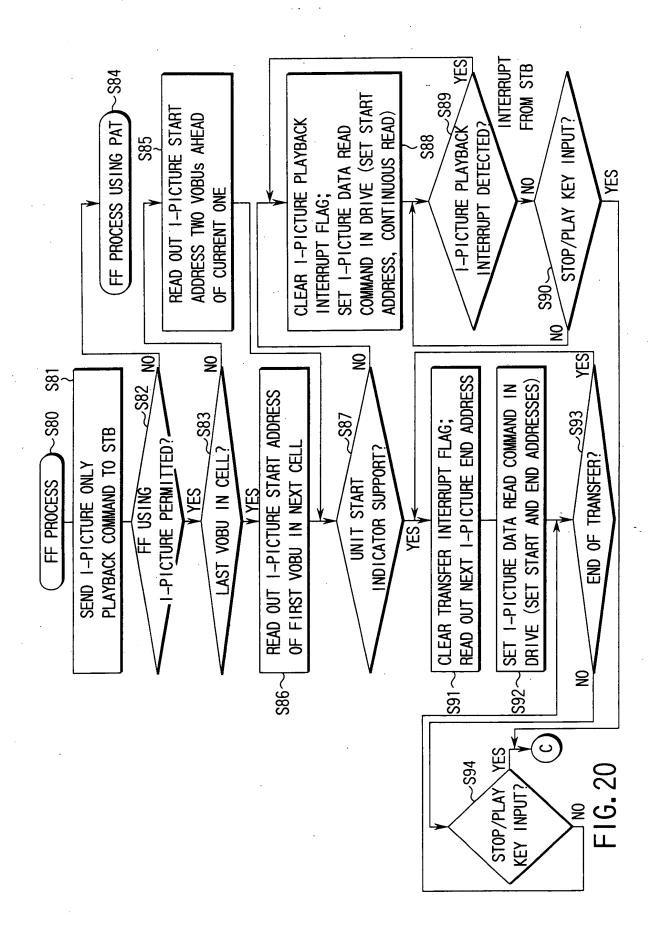


FIG. 18

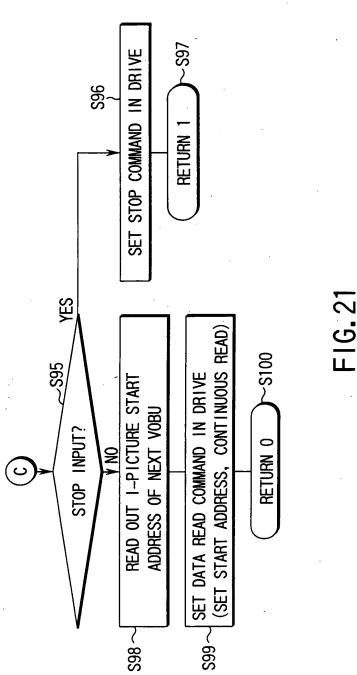
OBLON, SPIVAK, ET AL DOCKET #:204591US-2S DIV NV: HIDEO ANDO ET AL SHEET 19_OF_30_



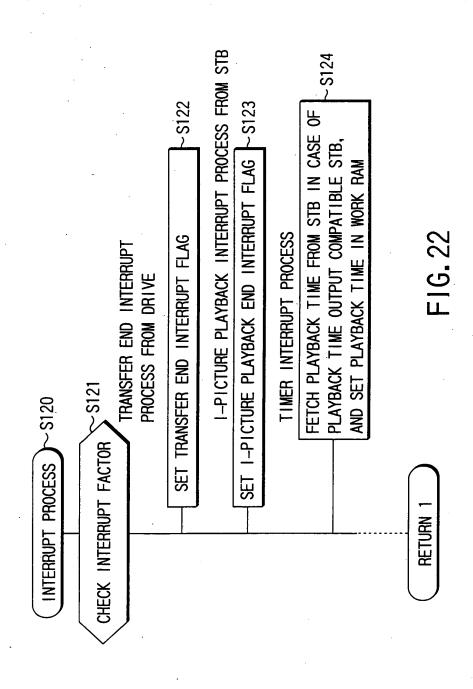
OBLON, SPIVAK, ET AL DOCKET #:204591US-2S DIV INV: HIDEO ANDO ET AL SHEET <u>20</u> OF <u>30</u>



OBLON, SPIVAK, ET AL DOCKET #:204591US-2S DIV NV: HIDEO ANDO ET AL



OBLON, SPIVAK, ET AL DOCKET #:204591US-2S DIV INV: HIDEO ANDO ET AL SHEET <u>22</u> OF<u>30</u>



OBLON, SPIVAK, ET AL DOCKET #:204591US-2S DIV INV: HIDEO ANDO ET AL SHEET 23_ OF_30_

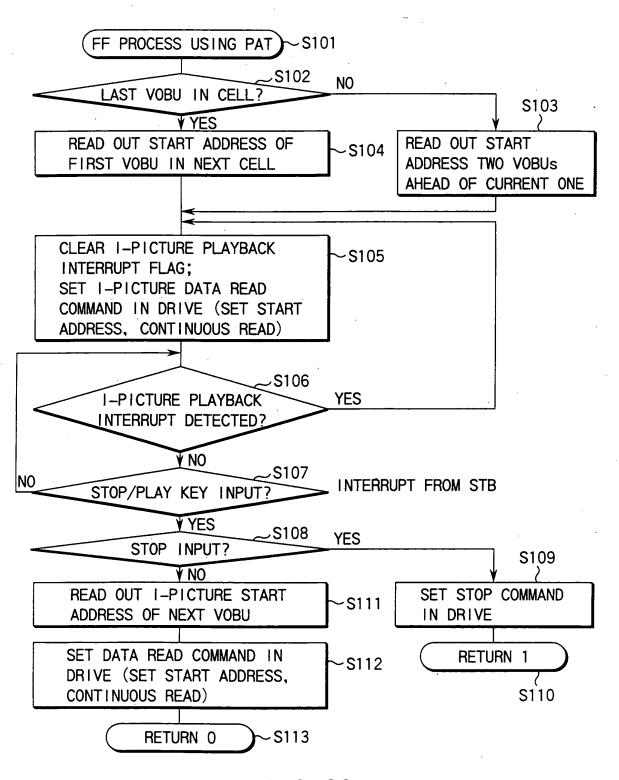


FIG. 23

OBLON, SPIVAK, ET AL DOCKET #:204591US-2S DIV INV: HIDEO ANDO ET AL SHEET 24_ OF_30_

| (a) | STAMP | TRANS- PORT PACKET a | STAMF | PO PA | ANS- RT CKET b | | TIME- STAMP ATS d | POF | RT KET | 5 | TIME- STAMP ATS f | POF | KET | ļ |
|-----|---------------------|-------------------------------|-----------------------------------|--------------|-------------------------|-----------|-------------------------------|-----|------------------------|------------|----------------------------|--------------------|-------------------|---|
| (b) | STAMP | TRANS- PORT PACKET a | STAMP | ··P0 ··PA | ANS- RT CKET d | F | TRANS- PORT PACKET d | | TRA POR PAC f | T | CODE | ARE | DDIN EA B6 | G |
| | PACK HEADER 1 | | STREAM I BLOCK HEADER 11 | | 1 | E | PES HEADE 7 | ERD | | A | DATA AREA 22 | | DATA ARE 23 | A |
| (d) | SECTOR NO.0 | SECTOR NO. 1 | 3 | | | - 1 | SECTOR 10.16 | 1 | CTOR . 17 | | | - 1 | CT01 | R |
| (e) | # 0 | | ECC BL0 # /3 OCK #1 | CK | | BI ‡ y | , | | BL #8 | | | C Bl #ε | | |
| (f) | | | S | TRE | AM OB | JE | CT #A | 298 | 3 | | | | | $\overline{oldsymbol{oldsymbol{\Box}}}$ |
| (g) | | LOCK | OCK #1 ECC BLO # /3 | | | Bl ‡γ | _OCK | | BLC BL | OCK | | C Bl #ε | | |
| (h) | SECTOR NO. 32 | SECTOF NO. 33 | | | | | SECTOR IO. 48 | | | | SECTOR 10.78 | | | |
| (i) | PACK HEADEF 3 | PES HEAD 8 | | CTOF | HEADER | 3 | DA ARI | EΑ | - 1 | ACK EAD | 1 | PADI PACI 40 | | |
| (i) | | TRAN: PACKI | | ID C | ODE P | | DING A 37 | | PES | HE 9 | ADER | | DING A 38 | - 1 |

FIG. 24

STREAM_ID

MPEG PROGRAM_END_CODE

SCR VALUE IN THE FIRST PACK OF A SOB

| (a)~ | STREAM BLOCK HEADER 11 | | | | | | | | | |
|------|---|--|--------------------------------------|----------------|-------------|----------------------------|-----------|--|--|--|
| (b)~ | TRANSPORT PACKET INFOR- MATION 611 | STREAM INFORM 61 | MATIO | | | | | SECTOR DATA HEADER INFORMATION 613 | | |
| (c)~ | IDVLK PI | TRANSPORT RECORD PACKET TIME ATTRI- 622 BUTION 623 | STRE BLOC SIZE 624 | K TIMI DIFI | CK | ACCE | ESS NT | TRANSPORT PACKET CONNECTION FLAG 627 | | |
| (d)~ | NUMBER PACKET | OF TRANSPORT 631 | TRANSPORT PACKET MAPPING TABLE 632 | | | | | | | |
| (e)~ | I-PICTURE MAPPING TABLE 641 | B,P-PICTURE START POSITION MAPPING TABLE 642 | PACKET PAC MAPPING MAP | | MAPPIN | PACKET I MAPPING TABLE 644 | | PROGRAM SPECIFIC INFORMATION MAPPING TABLE 645 | | |
| | | F | FIG | . 25 | | | | | | |
| (a)~ | | SECTOF | DAT | A HEAD | ER 12 | | | | | |
| (b)~ | FIRST A | ACCESS POINT 65 | TRANSPORT PACKET CONNECTION FLAG 652 | | | | | | | |
| | | • | : - | . 26 | | | | | | |
| | TRAINTS ON TEM HEADER | MPEG SPECIFICA | HONS | S FOR | | NOT | RE | INCLUDED | | |
| 3131 | CIVI DEADED | | | | SHALL | 101 | טב | INCLUDED | | |

ANY VALUE

SHALL NOT BE INCLUDED SHALL BE EQUAL TO BFh

(PRIVATE_STREAM_2) IN ALL PES PACKETS

OBLON, SPIVAK, ET AL DOCKET #:204591US-2S DIV INV: HIDEO ANDO ET AL SHEET <u>26</u> OF <u>30</u>

STREAMER INFORMATION (STRI) STREAMER VIDEO MANAGER
INFORMATION (STR_VMGI)

STREAM FILE INFORMATION
TABLE (SFIT)

ORIGINAL PGC
INFORMATION (ORG_PGCIT)

USER DEFINED PGC INFORMATION
TABLE (UD_PGCIT)

TEXT DATA MANAGER (TXTDT_MG)

APPLICATION PRIVATE DATA
MANAGER (APDT_MG)

VIDEO MANAGER
INFORMATION
MANAGEMENT TABLE
(VMGI_MAT)
PLAY_LIST SEARCH
POINTER TABLE
(PL_SRPT)

FIG. 28

STREAMER VIDEO
MANAGER INFORMATION
(STR_VMGI)

STREAM FILE INFORMATION
TABLE (SFIT)

ORIGINAL PGC
INFORMATION (ORG_PGCI)

USER DEFINED PGC INFORMATION
TABLE (UD_PGCIT)

TEXT DATA MANAGER (TXTDT_MG)

APPLICATION PRIVATE DATA
MANAGER (APDT MG)

STREAM FILE INFORMATION
TABLE INFORMATION (SFITI)

STREAM OBJECT STREAM
INFORMATION #1 (SOB_STI #1)

:

STREAM OBJECT STREAM
INFORMATION #n (SOB_STI #n)

STREAM FILE INFORMATION
(SFI)

FIG. 29

TABLE INFORMATION (SFITI)

STREAM OBJECT STREAM
INFORMATION #1 (SOB_STI #1)

:

STREAM OBJECT STREAM
INFORMATION (SOB_STI #n)

STREAM FILE INFORMATION
(SFI)

STREAM FILE INFORMATION

STREAM FILE GENERAL
INFORMATION (SF_GI)

STREAM OBJECT INFORMATION
SEARCH POINTER #1 (SOBI_SRP #1)

:

STREAM OBJECT INFORMATION
SEARCH POINTER #n (SOBI_SRP #n)
STREAM OBJECT
INFORMATION #1 (SOBI #1)

:

STREAM OBJECT
INFORMATION #n (SOBI #n)

FIG. 30

OBLON, SPIVAK, ET AL DOCKET #:204591US-2S DIV INV: HIDEO ANDO ET AL SHEET _27_ OF__30__

STREAM FILE GENERAL INFORMATION (SF_GI)

| · | CONTENTS | NUMBER OF BYTES |
|--------------|----------------------------|-----------------|
| (1) SOBI_Ns | NUMBER OF SOBIS | 2 |
| (2) SOBU_SIZ | NUMBER OF SECTORS PER SOBU | 2 |
| (3) MTU_SHFT | MAPPING TIME UNIT SHIFT | 1 |
| (4) RESERVED | RESERVED | 1 |
| | TOTAL | 6 |

FIG. 31

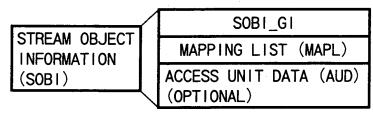
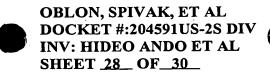
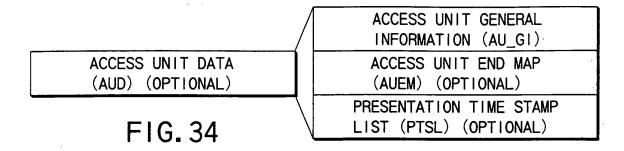


FIG. 32

STREAM OBJECT INFORMATION GENERAL INFORMATION (SOBI_GI)

| · | CONTENTS | NUMBER OF BYTES |
|-----------------|--------------------------------|-----------------|
| (1) SOB_TY | SOB TYPE | 1 |
| (2) SOB_REC_TM | SOB RECORDING TIME | 5 |
| (3) SOB_STI_N | SOB STREAM INFORMATION NUMBER | 1 |
| (4) AUD_FLAGS | ACCESS UNIT DATA FLAGS | 1 |
| (5) SOB_S_APAT | SOB START APAT | 6 |
| (6) SOB_E_APAT | SOB END APAT | 6 |
| (7) SOB_S_SOBU | FIRST SOBU OF THIS SOB | 4 |
| (8) MAPL_ENT_Ns | NUMBER OF MAPPING LIST ENTRIES | 4 |
| | TOTAL | 28 |

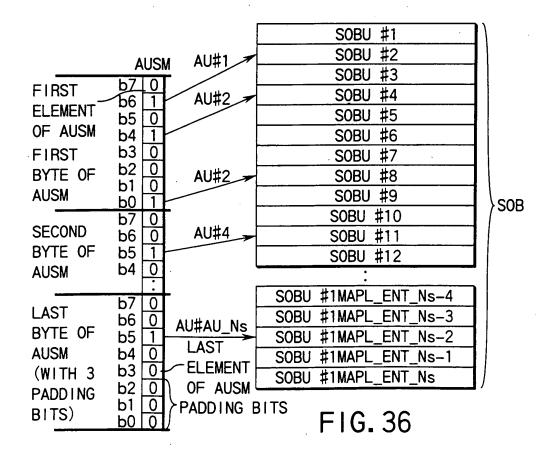




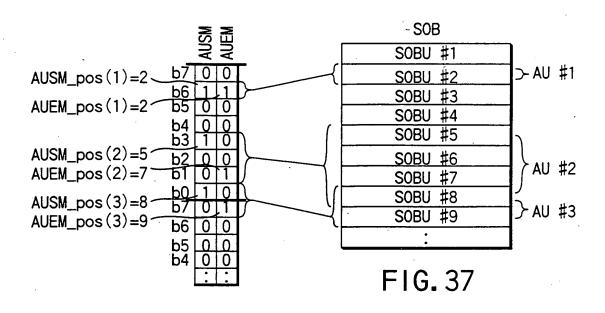
ACCESS UNIT GENERAL INFORMATION (AU_GI)

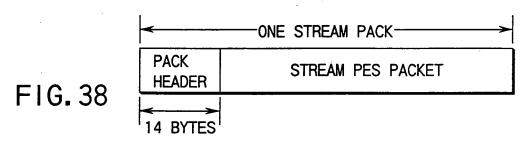
| | CONTENTS | NUMBER OF BYTES |
|-----------|---|---------------------------|
| (1) AU_Ns | NUMBER OF ACCESS UNITS | 4 |
| (2) AUSM | ACCESS UNIT START MAP (MAP_ENT_Ns ELEMENTS) | (MAPL_ENT_Ns+7) div 8 |
| | TOTAL | (MAPL_ENT_Ns+7) div 8 + 4 |

FIG. 35

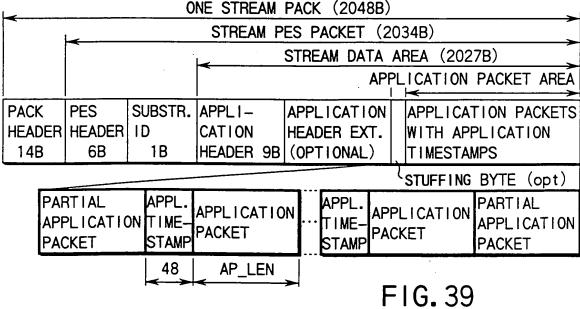


OBLON, SPIVAK, ET AL DOCKET #:204591US-2S DIV INV: HIDEO ANDO ET AL SHEET 29 OF 30





STRUCTURE OF THE STREAM DATA AREA WITHIN A STREAM PES PACKET



)

OBLON, SPIVAK, ET AL DOCKET #:204591US-2S DIV INV: HIDEO ANDO ET AL SHEET 30_OF_30_

| APPLICATION HEADER | | | | 1 |
|---------------------------|---------------|-------------|---------------|---------|
| FIELD | NUMBER NUMBER | | VALUE | COMMENT |
| | OF BITS | OF BYTES | | |
| (1) VERSION | 8 | 1 | 01h | |
| (2) AP_Ns | 8 | 1 | | |
| (3) FIRST_AP_OFFSET | 16 | 2 | | |
| (4) EXTENSION_HEADER_INFO | 2 | | 00b, 10b, 11b | |
| (5) RESERVED FOR CCI_ESC | 1 | 1 | 0b OR 1b | |
| (6) RESERVED | 5 | | 11111b | |
| (7) SERVICE_ID | 16 | 2 | | |
| (8) MAX_BR_LOG2 | 8 | 1 | | |
| (9) SMO_BS_LOG2 | 8 | 1 | | |
| | TOTAL | 9 | | |

FIG. 40